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## BULLETIN NO. 43

BUREAU OF EDUCATIONAL RESEARCH  
COLLEGE OF EDUCATION

### A SELECTED ANNOTATED BIBLIOGRAPHY DEALING WITH EXAMINATIONS AND SCHOOL MARKS

By

C. W. ODELL  
Assistant Director  
Bureau of Educational Research



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## A SELECTED ANNOTATED BIBLIOGRAPHY DEALING WITH EXAMINATIONS AND SCHOOL MARKS

It is the purpose of this bulletin to present an annotated bibliography of three hundred references dealing with examinations made by the teacher, school marks, and closely related topics. Standardized tests<sup>1</sup> are not included. The modern educational measurement movement, which began some twenty or more years ago, devoted practically all of its attention to standardized tests and school marks until 1920. In January of that year appeared McCall's article<sup>2</sup> on the new examination.<sup>3</sup> This was the beginning of the very considerable amount of interest in new-type tests constructed by classroom teachers which has been manifested within the past few years. Naturally the discussion of the proposed new means of measuring the achievements of pupils also led to considerable discussion of the traditional examination,<sup>4</sup> the instrument in common use previously. In the earlier days of the modern measurements movement, there had been a fairly strong tendency to suggest that standardized tests should replace many or even most examinations prepared by the teacher. More recently, however, this is being less strongly advocated and instead teachers are urged to make many of the examinations that they prepare resemble standardized tests in form and methods of administering and scoring. Therefore, in view of the widespread interest in teacher-made examinations at present, it has seemed that an up-to-date bibliography on this topic would be of assistance to many persons. School marks are so closely related to examinations that references dealing with them have also been included. Many of these references date back further than almost all of those dealing with examinations and tests, since several noteworthy studies of marks which were made fifteen or more years ago aroused considerable interest. Moreover, even before then, different persons from time to time recognized the need for improving the marking system and offered suggestions looking to that result.

The references included in this bibliography were chosen after the examination of several times the number listed. No attempt was

<sup>1</sup>Strictly speaking, a standardized test is merely one for which norms based on a sufficient number of individuals have been determined. In common usage, however, it is generally understood that such a test has also been so constructed as to secure uniformity of administration, yield relatively objective scores, and otherwise satisfy the criteria of a good test fairly well.

<sup>2</sup>McCall, W. A. "A New Kind of School Examination," *Journal of Educational Research*, 1:33-46, January, 1920.

<sup>3</sup>The term "new examination" is often employed to include those types of tests or exercises which call for very brief pupil responses and which permit objective or near-objective scoring. These types are also called new-type tests and objective tests.

<sup>4</sup>A traditional or essay examination is one of the type that requires pupils to discuss, outline, compare, state, or otherwise deal with topics at some length.

made to secure an absolutely complete list of references on the topics dealt with as a source of selection. All of the important and many of the unimportant educational periodicals printed in the English language, also most texts and other bound volumes as well as a considerable mass of bulletins, pamphlets, and other miscellaneous publications, were examined. This was done with considerable care for all material published within approximately the last two decades, and somewhat less carefully for what had appeared previous to that time. All references in other similar bibliographies were given consideration. Thus it appears unlikely that any appreciable number of really worthwhile references were not found and examined. The three hundred selected were those which the writer considered most helpful for one or both of two chief purposes. In the first place, the bibliography is intended to be of assistance to classroom teachers and others seeking help in the actual construction and use of examinations and in the assignment of school marks. In the second place, it is designed to be useful to students and research workers who wish to make detailed and critical studies of the problems involved. With the first purpose in mind, the writer has included many references which are entirely or chiefly devoted to giving examples of examinations and tests and definite suggestions as to how they may be employed. There is also similar material concerning marking systems. Because of the second purpose, he has listed many which report the results of critical studies having to do with validity, reliability, criteria of good examinations, and so forth.

The bibliography is divided into five sections, which have the following headings and begin on the following pages, respectively:

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Under the first head, General, will be found those references which cover topics belonging under two or more of the other four heads, and some which are so very general in their nature that they could not properly be classified elsewhere. Under each of the others are those which deal exclusively with the topic indicated, or so nearly so as to be best placed there.

## PART I. GENERAL

1. ACHTENHAGEN, OLGA. "Why is an Examination—and What of It?" *English Journal*, 15:285-89, April, 1926.  
A plea that teachers employ examinations so as to secure the possible benefits rather than as mere necessities or formalities.
2. BALLARD, P. B. *The New Examiner*. London: Hodder and Stoughton, 1924. 269 p.  
Ballard devotes several chapters to examination as measurement, one to essay examinations, and several to new-type tests.
3. BARDY, JOSEPH. *An Investigation of the Written Examination as a Measure of Achievement with Particular Reference to General Science*. Philadelphia: University of Pennsylvania, 1923. 176 p.  
This includes a study of present examination practices in high school, an account of an experiment with traditional and new-type tests in general science, and a number of tests of both kinds.
4. BOYD, WILLIAM. "Exploration of the True-False Method of Examination," *Forum of Education*, 4:34-38, February, 1926.  
As the result of an experimental study, the writer concludes that traditional examinations are more valid than true-false tests.
5. BRANOM, M. E. *The Measurement of Achievement in Geography*. New York: The Macmillan Company, 1925. 188 p.  
This is a very helpful treatment of the subject. It includes discussions of the purpose, need and value of testing, many samples of tests with detailed information as to how to construct them, descriptions of standardized tests, a bibliography, and so forth.
6. BREEZE, R. E. "Correcting Examination Papers," *School Review*, 33:57-61, January, 1925.  
The writer reports two experiments which appear to show that returning and discussing examination papers does not stimulate pupils to greater effort, but does result in some benefit by way of increasing knowledge.
7. BRINKLEY, S. G. "Values of New-Type Examinations in the High School, with Special Reference to History," *Teachers College, Columbia University Contributions to Education*, No. 161. New York: Bureau of Publications, Teachers College, Columbia University, 1924. 122 p.  
In addition to the account of a carefully conducted experiment dealing with the merits and limitations of essay examinations and of five varieties of new-type tests in history, there is a general treatment of examinations. The experiment described is one of the most helpful ones reported.
8. COLVÍN, S. S. "The Methods of the Class Period—Testing the Knowledge of the Pupil," *An Introduction to High-School Teaching*. New York: The Macmillan Company, 1921, Chapter VIII.  
Reasons for testing, varieties of tests, improvement of marking and general principles of testing are treated in a very clear manner.

9. DADOURIAN, H. M. "Are Examinations Worth the Price?" *School and Society*, 21:442-43, April 11, 1925.

The writer reaches the conclusion that the results supposed to be obtained from examinations in college would be more effectively secured if examinations were abolished.

10. DAVIS, S. E. "Measuring the Work of the School," *The Work of the Teacher*. New York: The Macmillan Company, 1918, Chapter IX.

Among the topics dealt with in this chapter are the question of what is to be measured, marking systems, and objections to examinations.

11. DILLARD, J. H. "Examinations," *School and Society*, 25:544-45, May 7, 1927.

A forceful argument for examinations and for the testing of both memory and thought.

12. DOUGLASS, H. R. "Quizzes, Examinations and Marking," and "New Ideas in Written Examinations," *Modern Methods in High School Teaching*. Boston: Houghton Mifflin Company, 1926, Chapters XII and XIV.

Both of these chapters contain clear, practical helps for teachers and others interested. They are well illustrated with concrete examples and followed by short, but good, bibliographies.

13. ELLIS, R. S. *Standardizing Teachers' Examinations and the Distribution of Class Marks*. Bloomington, Illinois: Public School Publishing Company, 1927. 170 p.

This manual deals with the construction and scoring of tests, the conversion of scores into marks, and the interpretation of marks. It is too brief and sketchy to furnish a complete guide, but contains many helpful suggestions.

14. GILCHRIST, E. A. "The Aims of Physics Examinations and How to Accomplish Them," *High School Conference Proceedings*, 1927. Urbana: University of Illinois, 1928, p. 298-301.

Four specific aims of tests in physics are stated and some suggestions made as to how to accomplish them.

15. GREENLAW, EDWIN and MILES, DUDLEY. "Examinations," *Teaching Literature*. Chicago: Scott, Foresman and Company, 1926, Chapter IX.

Most of the chapter is devoted to objective examinations. Examples of several types of them are given.

16. HANDSCHIN, C. H. *Methods of Teaching Modern Language*. Yonkers: World Book Company, 1923, p. 292-304.

Handschin states a number of principles which should be followed in making examinations. He gives several pages of questions in French, showing how they could be improved, also a suggested model examination for elementary French.

17. HANNIG, W. A. "The Relative Worth of Short Answer and Free Answer Material in Elementary Teacher Tests," *Public Personnel Studies*, 4:277-78, October, 1926.

A study made for the Board of Examiners of New York City indicated that a one-hour short-answer or new-type examination gave results about as reliable as a four-hour free-answer or essay examination. It is not, however, recommended that the latter be entirely displaced by the former.

18. HAYHURST, E. R. *How to Write an Examination*. Columbus: Ohio State University Cooperative Supply Company, 1922. 31 p.

This is a brief and practical list of forty "pointers," intended for students and all others who may be taking examinations. Little attention is given to theory, although reasons are stated.

19. HOLLEY, C. E. "Measuring the Results of Teaching," *The Teacher's Technique*. New York: Century Company, 1922, Chapter XIV.

An excellent but rather brief and general treatment of oral and written testing, marks and standards.

20. JAMES, B. B. "The Modern Test," *School and Society*, 19:209-13, February 23, 1924.

A plea for new-type tests, with arguments for them and against the essay examination.

21. JOHNSON, F. W. "The Final Examination as an Instrument of Instruction and Supervision," *High School Teacher*, 2:223-31, June, 1926.

The writer believes that examinations are usually unnecessary for promotional purposes, but that they have other definite and obtainable values. Also, he doubts the advisability of exemptions. Finally, he suggests a number of principles to be followed in making and giving examinations.

22. JOHNSON, HENRY. "The History Examination," *Teaching of History in Elementary and Secondary Schools*. New York: The Macmillan Company, 1916, Chapter XVI.

Johnson points out the desirability of testing more than mere memorization of textbook material, and gives a number of examples of what he considers good questions.

23. KIMMEL, W. C. "The Use of Practice Tests in the Teaching of the Social Sciences," *Historical Outlook*, 14:354-58, December, 1923.

This describes a series of practice tests used in the Laboratory Schools of the University of Chicago. Four of the new types and one of the old are included.

24. KINDER, J. S. "Supplementing Our Examinations," *Education*, 45:557-66, May, 1925.

This includes directions for making, giving and scoring true-false tests, data on the validity and reliability of several kinds of examinations and a list of the advantages of the new examination.

25. KLAPPER, PAUL. "Testing the Results of Teaching," *The Teaching of History*. New York: D. Appleton and Company, 1926, Chapter XVI.

Most of this chapter is devoted to the use of several varieties of new-type tests. Each is illustrated by a number of examples.

26. LAIRD, D. A. "A Comparison of the Essay and the Objective Type of Examinations," *Journal of Educational Psychology*, 14:123-24, February, 1923.

A comparison of an essay and an objective examination over the same limited subject-matter showed that the latter secured more complete responses and that the correlation between the two was almost zero.

27. LATHAM, HENRY. *On the Action of Examinations considered as a means of Selection*. Cambridge: Deighton, Bell, 1877. 544 p.

This long discussion has little practical value for today, but presents the point of view held by many schoolmen and scholars. Many phases of the subject are considered.

28. LOCKHART, A. V. "Examinations and Education," *School and Society*, 27:725-26, June 16, 1928.

This is an argument for frequent short tests as well as final examinations and also against the practice of employing readers to mark papers.

29. LOWELL, A. L. "The Art of Examination," *Atlantic Monthly*, 137:58-66, January, 1926. Also in *The Work of the College Entrance Examination Board*, 1901-25. Boston: Ginn and Company, 1926, p. 31-43.

A very forceful statement of three chief purposes or values of examinations: they measure achievement, serve as direct means of education, and set standards.

30. MATIMORE, P. H. "The New vs. the Old; Objective Versus Subjective Examinations," *Catholic School Interests*, 5:358-60, December, 1926.

The writer mentions a number of faults of the old type, gives examples of subjective marking, states that the new type also has its weaknesses, and gives several examples of its use.

31. MONROE, W. S. *An Introduction to the Theory of Educational Measurements*. Boston: Houghton Mifflin Company, 1923. 364 p.

Although chiefly devoted to standardized tests, this volume contains many statements which apply to examinations or tests made by teachers. Chapter XI, which treats of the improvement of examinations especially through increasing their objectivity, is most directly helpful.

32. MONROE, W. S. "Measurement of Achievement, General Principles," and "The Improvement of Measurement Procedures," *Directing Learning in the High School*. Garden City: Doubleday, Page and Company, 1927, Chapters XV and XVI.

A discussion of varieties of measurement and the general principles involved is followed by statements of the merits and limitations of different types of

tests and suggestions for constructing and administering examinations. Marking is also discussed.

33. MONROE, W. S. "Written Examinations and Their Improvement," *Historical Outlook*, 14:211-19, 306-18; June, November, 1923.

The material contained in this article is taken from the bulletin described in the following reference:

34. MONROE, W. S. "Written Examinations and Their Improvement," *University of Illinois Bulletin*, Vol. 20, No. 7, Bureau of Educational Research Bulletin No. 9. Urbana: University of Illinois, 1922. 71 p.

This contains a brief but very helpful discussion of the arguments for and against ordinary written examinations, some suggestions for their improvement, and a number of examples of both new-type and traditional examinations.

35. MONROE, W. S. "Written Examinations Versus Standardized Tests," *School Review*, 32:253-65, April, 1924.

This presents somewhat the same material as the bulletin by Monroe and Souders described below. It makes the point that written examinations can be made to approach standardized tests in reliability.

36. MONROE, W. S. and CARTER, R. E. "The Use of Different Types of Thought Questions in Secondary Schools and Their Relative Difficulty for Students," *University of Illinois Bulletin*, Vol. 20, No. 34, Bureau of Educational Research Bulletin No. 14. Urbana: University of Illinois, 1923. 26 p.

Twenty different types of thought questions are defined and their use described.

37. MONROE, W. S., DEVOSS, J. C., and KELLY, F. J. "Improvement of Written Examinations," *Educational Tests and Measurements*, Revised and Enlarged Edition. Boston: Houghton Mifflin Company, 1924, Chapter XIV.

This chapter is devoted to a discussion of the relative reliability and objectivity of written examinations and standardized tests, followed by a number of suggestions for improving the former.

38. MONROE, W. S. and SOUDERS, L. B. "The Present Status of Written Examinations and Suggestions for Their Improvement," *University of Illinois Bulletin*, Vol. 21, No. 13, Bureau of Educational Research Bulletin No. 17. Urbana: University of Illinois, 1923. 77 p.

In this will be found a summary of criticisms of examinations, a comparison of ordinary examinations with standardized tests, based upon actual data, a report of a study of examination practices in Illinois high schools, suggestions for improving examinations and samples of the more objective varieties.

39. MORLEY, E. E. "Final Examinations and the Effect of Exemptions," *High School Teacher*, 2:90-91, March, 1926.

An account of an experiment with exemptions which convinced Morley of their good results in motivating work.

40. MYERS, G. C. "The Examination and the Learner," *Educational Review*, 54:274-84, October, 1917.

The need for examinations and how they may contribute to the learning process are pointed out. A number of guiding principles are also given.

41. NUTT, H. W. "Measurement of the Results of Teaching," *Principles of Teaching High-School Pupils*. New York: Century Company, 1922, Chapter VIII.

This contains a very good treatment of the principles underlying measurement, also a number of detailed suggestions.

42. ODELL, C. W. *Traditional Examinations and New-Type Tests*. New York: Century Company, 1928. 469 p.

This is the most complete treatment of both old and new-type examinations in print. The purposes and desirable qualities of examinations are discussed, principles of constructing and administering them explained, and over a hundred examples given. There are also several chapters dealing with marks.

43. OPDYKE, J. B. "Constructive Examinations," *Educational Review*, 73:33-43, January, 1927.

In this helpful article, the writer discusses short tests, setting the tests, evaluating questions, good and bad questions, sequence and continuity in examinations, rating answers, and the relation of examinations to the school organization. It is one of the best short general treatments of the subject.

44. OZANNE, C. E. "A Study of Different Types of Teachers' Tests," *School Review*, 34:54-60, January, 1926.

A comparison of a completion test of memory, a topical discussion test, and a completion test of reasoning given to about 100 high-school pupils. The pupils' opinions on a number of points were collected and tabulated.

45. PATERSON, D. G. "Do New and Old Type Examinations Measure Different Mental Functions?" *School and Society*, 24:246-48, August 21, 1926.

Paterson cites evidence which he claims supports the view that new and old-type examinations measure the same mental functions.

46. RADCLIFFE, H. H. "Essentials of Good Examinations," *High School Conference Proceedings*, 1926. Urbana: University of Illinois, 1926, p. 306-7.

A brief treatment of a few points that should be applied in making and using examinations.

47. REEVE, W. D. *A Diagnostic Study of the Teaching Problems in High-School Mathematics*. Boston: Ginn and Company, 1926. 117 p.

Although centered about the construction and use of a particular set of scales, this book discusses mathematics testing in general.

48. ROBACK, A. A. "Subjective Tests vs. Objective Tests," *Journal of Educational Psychology*, 12:439-44, November, 1921.

Roback lists a number of objections to true-false, multiple-choice and similar tests.

49. RUCH, G. M. "Investigations of Tests and Examinations in the Social Studies," *Yearbook Number Fifteen of the National Society of College Teachers of Education*. Chicago: University of Chicago Press, 1926, p. 108-19.

Ruch gives data on the unreliability of state diploma examinations, on corrections for chance, on "guess" vs. "do not guess" instructions in multiple-choice tests, and on the best number of items for matching tests.

50. RUGG, EARLE. "Evaluating the Aims and Outcomes of History," *Historical Outlook*, 14:324-26, November, 1923.

The writer urges the use of standardized and objective tests, the standardization of certain types of essay questions, and, in general, the careful measurement of results.

51. RUSSELL, CHARLES. *Classroom Tests*. Boston: Ginn and Company, 1926. 346 p.

This book contains full discussions of the construction and use of several of the new types of tests. It gives much attention to statistical methods of determining question difficulty and of making composite scores.

52. SCHUTTE, T. H. "Is There Value in the Final Examination?" *Journal of Educational Research*, 12:204-13, October, 1925.

The writer reports an experiment which tends to show that normal-school students definitely profit by knowing that a final examination is to be given.

53. SECHRIST, F. K. "Examinations and Grading," *Education*, 35:196-210, December, 1914.

The weighting of errors and evaluation of answers are discussed, also the general meaning of marks. Data are given which show how teachers disagree on the seriousness of certain types of errors.

54. SHERMAN, J. H. "Is the Examination Worth Retaining?" *School and Society*, 27:694-96, June 9, 1928.

A strong plea that final examinations are very practical and valuable and that no marks be given on classroom work.

55. SHRYOCK, R. H. "New Tests for Old," *Historical Outlook*, 14: 319-22, November, 1923.

This is "an examination of the relationship of aims and methods of testing in the teaching of history," with especial reference to the newer aims of history teaching.

56. STORMZAND, M. J. "New Methods in Testing," *Progressive Methods of Teaching*. Boston: Houghton Mifflin Company, 1924, Chapter XI.

Examinations in general are discussed, the old and new types compared, the limitations of each stated, and the latter explained and illustrated.

57. SYMONDS, P. M. *Measurement in Secondary Education.* New York: The Macmillan Company, 1927, Chapters I, II, III, XXIV and XXV.

These chapters deal with the purposes of measurement, the unreliability of examination marks, the improvement of examinations, the construction of new-type tests, marking systems, and the use of tests for instructional purposes.

58. TERPENNING, W. A. "The Value of Examinations," *Detroit Journal of Education*, 2:26-29, November, 1921.

An argument that final examinations are not adequate measures of knowledge, have serious ill effects, and should be abolished.

59. THARP, J. B. "The New Examination Versus the Old in Foreign Languages," *School and Society*, 26:691-94, November 26, 1927.

Data from the use of both types indicate that the new examination will measure knowledge of grammar as accurately as the old, and more widely, also that its scoring is more rapid and objective.

60. TODD, E. A. "The Improvement of the Written Examination," *High School Conference Proceedings*, 1926. Urbana: University of Illinois, 1926, p. 196-98.

The writer suggests eight characteristics desirable in examination questions, illustrates their application in home economics and finally states eleven questions to be asked about tests in judging them.

61. TORGERSON, T. L., et al. "The Improvement of Written Examinations," *University of Wisconsin, Supervisory Service Bureau, Bulletin No. 1.* Madison: University of Wisconsin, Supervisory Service Bureau, March, 1928. 30 p.

This is a very helpful treatment of essay and new-type examinations, with suggestions as to how to make and use them.

62. TRYON, R. M. "Measuring the Results of History Teaching," *The Teaching of History in Junior and Senior High Schools.* New York: Ginn and Company, 1921, Chapter VIII.

The first part of this chapter suggests how history examinations may be improved and made something more than mere memory tests.

63. WALKER, H. A. C. "Examinations in the High School," *School Review*, 32:209-17, March, 1924.

A summary of the results of a questionnaire study of high-school practices as to examinations and marking.

64. WALLIS, B. C. *The Technique of Examining Children.* London: The Macmillan Company, 1927. 136 p.

Although this deals especially with the English system of examinations, it contains many useful suggestions as to how to improve essay examinations and to mark them more objectively.

65. WEIDEMANN, C. C. "Determinate and Indeterminate Information in Written Examinations," *Journal of Educational Method*, 7: 126-27, December, 1927.

A distinction between determinate and indeterminate information is made and the necessity for testing both pointed out.

66. WEIDEMANN, C. C. and WOOD, B. D. *Survey of College Examinations*. New York: Bureau of Publications, Teachers College, Columbia University, 1926. 30 p.

This reports a survey of over 6,700 examinations in 65 different colleges. It is by far the most comprehensive study of this sort made to date.

67. WEST, P. V. "The Significance of Weighted Scores," *Journal of Educational Psychology*, 15:302-8, May, 1924.

The correlation between weighted and unweighted scores is shown to be so high that ordinarily the use of the latter is satisfactory.

68. WILGUS, A. C. "An Effective Use of the History Examination," *Education*, 42:280-85, January, 1922.

This contains a number of suggestions as to how more value may be derived from examinations in history.

69. WOOD, B. D. "The Measurement of Law School Work," *Columbia Law Review*, 24:224-65, March, 1924.

Wood deals with the meaning, basis, distribution, and correlation of marks given in the Columbia Law School, illustrates and describes the use of new-type tests there, and presents evidence and opinions in their favor.

70. WOOD, B. D. "The Regents Experiment with New-Type Examinations in French, Spanish, German, and Physics," *New York Experiments with New-Type Modern Language Tests*. New York: The Macmillan Company, 1927, Part 2, p. 105-319.

This gives a detailed account of the use of new-type tests as part of the New York Regents Examinations and compares the results with those from Regents Examinations of the old type. The new-type ones are shown to be decidedly superior.

71. WOOD, E. P. "Improving the Validity of Collegiate Achievement Tests," *Journal of Educational Psychology*, 18:18-25, January, 1927.

This reports a comparison of true-false, multiple-response, completion, and essay tests which indicated that the completion test has slightly higher validity than the true-false and multiple-answer, and all three much greater than the essay type.

72. ———— "The Scoring Reliability of Test Material in the Free Answer and Short Answer Forms," *Public Personnel Studies*, 6:98-108, May, 1928.

Data are given which show that the reliability of free-answer tests is less than commonly supposed, but that if short-answer tests are used, it can be made rather high.

**PART II. TRADITIONAL EXAMINATIONS**

There are very few references under this head because almost all recent discussions of traditional examinations deal with new-type tests also, and therefore are placed under "General."

73. CALKINS, M. W. "Philosophers in Council," *School and Society*, 17:316-20, March 24, 1923.

This is an illustration of an unusual, but ingenious, interesting, and valuable type of discussion examination. It consists of the beginnings of a number of speeches or arguments which are to be completed.

74. FOSTER, H. D. "Adequate Tests in History," *History Teacher's Magazine*, 5:116-23, April, 1914.

Foster reports a study of many questions used in college-entrance examinations, giving the ones selected as most and least adequate according to the judgments of both pupils and readers.

75. GATHANY, J. M. "The Giving of History Examinations," *Education*, 34:514-21, April, 1914.

The writer offers a number of adverse criticisms of the usual methods of giving history examinations, especially of keeping the pupils from knowing what the questions are to be. He advocates and gives arguments to support the view that the exact questions be given a week or more in advance.

76. GRAY, W. S. "Value of Informal Tests of Reading Accomplishment," *Journal of Educational Research*, 1:103-11, February, 1920.

Several varieties of informal tests are described and suggestions given for the improvement of teaching through their use.

77. KEATINGE, M. W. *Studies in the Teaching of History*. London: A. and C. Black, 1910, p. 168-88.

The writer centers his discussion about some examination questions in history, which he quotes. He points out their defects and tells how to remedy them.

78. OSGOOD, E. L. "Some Experiments in a New Type of History Examination," *History Teacher's Magazine*, 9:337-39, June, 1918.

This is an account of examinations written outside of school, according to directions prepared and handed out by the teacher.

79. SALMON, L. M. "How Should the Entrance Examination Paper in History be Constructed?" *Educational Review*, 26:22-35, June, 1903.

This is a fairly detailed statement of the procedure and principles followed in constructing one set of College Entrance Board examinations in history.

80. SAYRS, W. C. "What Should be the Character of an English Test?" *Educational Review*, 61:138-47, February, 1921.

The writer criticizes the usual type of examinations in literature very severely. He states that tests should measure knowledge, resulting feelings, and strength of desire to act.

81. SECHRIST, F. K. "The Process of Examining," *Educational Review*, 50:399-417, November, 1915.

Sechrist discusses a number of points connected with examinations and marks, especially emphasizing that the chief thing tested should be power to do and to apply, not mere store of knowledge.

82. SHARP, L. A. "The Value of Standards in Grading Examination Papers," *Peabody Journal of Education*, 3:38-45, July, 1925.

An experiment showed that when a definite standard of grading was used, the variability of grades assigned an arithmetic paper by different teachers was greatly reduced.

83. THOMA, W. M. "Committee Marking of Examinations," *Bulletin of High Points*, 6:26-28, February, 1924.

The writer believes that the committee marking plan does not produce marks enough better than those of a single individual to balance the disadvantages and bad results.

### PART III. NEW-TYPE TESTS

84. ARNOLD, H. L. "Analysis of Discrepancies Between True-False and Simple Recall Examinations," *Journal of Educational Psychology*, 18:414-20, September, 1927.

As a result of experimental work, Arnold presents a number of observations and conclusions along the lines indicated.

85. ASKER, WILLIAM. "The Reliability of Tests Requiring Alternative Responses," *Journal of Educational Research*, 9:234-40, March, 1924.

From the study of experimental data, the writer concludes that the right-minus-wrong method of scoring alternative-response tests is unsatisfactory in the case of individuals who know part of the answers and guess at the remainder.

86. BARTHELMESS, H. M. "Reply to a Criticism of Tests Requiring Alternative Responses," *Journal of Educational Research*, 6:357-59, November, 1922.

This is a defense of alternative-response tests written more or less in reply to Hahn's criticism. The validity and reliability of true-false tests is said to be high, the right-minus-wrong method of scoring satisfactory, and so forth.

87. BATSON, W. H. "Reliability of the True-False Form of Examination," *Educational Administration and Supervision*, 10:95-102, February, 1924.

The true-false and essay types of tests are compared and the conclusion reached that for testing information, the former possesses many advantages.

88. BAUGH, R. D. "Objective Measurement Tests in Commercial Subjects," *The High School*, 4:131-34, May, 1927.

Several varieties of objective tests are mentioned and suggestions given as to how to employ them.

89. BERNSTEIN, LOUIS. "A New Type of Examination in History," *Bulletin of High Points*, 5:15-20, March, 1923.

This describes and illustrates true-false and completion exercises used in a New York City high school and discusses their value and use.

90. BRINKLEY, S. G. "Relative Value of Different Types of Questions in Reading Tests," *School Science and Mathematics*, 25: 703-8, October, 1925.

An experiment with single-answer, true-false, and multiple-response exercises indicated that the first were slightly more valid than the other two.

91. BROWN, C. M. "Construction and Use of Information Tests in Home Economics," *Journal of Home Economics*, 16:251-56, May, 1924.

Several types of objective exercises in home economics are illustrated and their use discussed.

92. BROWN, C. M. "What Can Educational Measurements Do for Home Economics?" *Journal of Home Economics*, 16:191-96, April, 1924.

The writer points out several of the advantages of objective tests and urges their use in home economics.

93. BUCKINGHAM, B. R. "New-Type Examinations," *Research for Teachers*. New York: Silver, Burdett and Company, 1926, Chapter VI.

This is a very practical treatment of the subject. About twenty varieties of the new examination are illustrated and discussed. Also a bibliography of almost forty references is given.

94. BUCKNER, C. A. and HUGHES, R. O. "Testing Results in the Social Studies," *School of Education, University of Pittsburgh Journal*, 1:5-11, September-October, 1925.

This résumé of a master's thesis gives samples of various types of objective exercises, indicates the purposes served by each, and reports the pupils' evaluations of different kinds of tests.

95. BURSCH, J. F. and MELTZER, HYMAN. "The New Examination: Its Construction and Use," *School of Vocational Education, Oregon State Agricultural College Bulletin*, No. 422. Corvallis: Oregon State Agricultural College, 1926. 40 p.

This discusses the characteristics of a good examination, illustrates a dozen types of new examination questions, tells how to make and score a new examination, treats of its special uses, and finally gives a number of tests in vocational subjects. On the whole it is one of the best treatments of the subject.

96. BURTON, W. H. "A Contribution to the Technique of Constructing 'Best-Answer' Tests," *Elementary School Journal*, 25:762-70, June, 1925.

Certain principles for constructing best-answer tests are illustrated by examples showing their application in practice.

97. BUTLER, W. F. "The Value of Informal Tests in Supervision," *First Yearbook of the Department of Elementary-School Principals*. Washington: National Education Association, 1922, p. 94-119.

Examples of tests constitute the bulk of this article. Quite a number of subjects are included and several of the examples illustrate rather unusual and suggestive types of tests.

98. CHAPMAN, J. C. "Home-Made Objective Examinations for Every-day Use," *Twelfth Annual Schoolmen's Week Proceedings*, 1925. Philadelphia: University of Pennsylvania Press, 1925, p. 291-96.

Chapman points out the weaknesses of essay examinations, shows why standardized tests do not suffice, and illustrates and discusses four common types of objective tests.

99. CHAPMAN, J. C. "Individual Injustice and Guessing in the True-False Examination," *Journal of Applied Psychology*, 6:342-48, December, 1922.

The writer shows by actual data the injustice done by using the right-minus-wrong scoring formula and concludes that there is grave doubt whether the merits of the true-false test outweigh its demerits.

100. CHRISTENSEN, A. M. "A suggestion as to Correcting Guessing in Examinations," *Journal of Educational Research*, 14:370-74, December, 1926.

It is suggested that a true-false test be followed by a multiple-answer one and that a pupil's score be the number of exercises correctly answered on both tests.

101. COOK, C. G. *New Type Questions in Chemistry*. New York: Globe Book Company, 1927. 91 p.

This small book is entirely filled with new-type exercises of a number of kinds. It should be very helpful to teachers of chemistry.

102. CRAWFORD, C. C. and RAYNALDO, D. A. "Some Experimental Comparisons of True-False Tests and Traditional Examinations," *School Review*, 33:698-706, November, 1925.

Fifteen out of twenty different comparisons indicate that the traditional examination is more reliable than the true-false test, but in some situations the latter appears to be decidedly better. The use of both is recommended.

103. CURTIS, F. D. and WOODS, G. G. "A Study of a Modified Form of the Multiple-Response Test," *Journal of Educational Research*, 18:211-19, October, 1928.

The writer shows that a modified form of the multiple-answer test appears to be at least as good as the usual form and to possess a few distinct advantages.

104. DAVIES, G. R. "Guessing in True-or-False Tests," *School of Education Record of the University of North Dakota*, 10:68-69, June, 1925.

In this article it is claimed that the effect of guessing is not determined accurately, that the number of true and false statements should not be equal, and that it would be desirable to have students indicate which answers are guesses.

105. DOUGLASS, H. R. "Unstandardized Objective Tests in Junior and Senior High Schools," *The High School*, 4:119-24, May, 1927.

A short statement of the development and points of superiority of such tests is followed by a number of examples, and suggestions for constructing and scoring them.

106. DUBOC, J. L. "History and Geography in Intermediate Grades-V, Informal Tests and Assignments," *Normal Instructor and Primary Plans*, 37:26, 86-87, January, 1928.

A number of interesting and informal tests are given and briefly discussed. Several of them involve the use of drawings or figures.

107. DU BREUIL, A. J. "The Last Word of the Advocate for the Deep-Blue-Sea," *Illinois Association of Teachers of English Bulletin*, 16:12-13, April 1, 1924.

This is a brief rejoinder to Professor Leonard's second article criticizing the writer's tests.

108. DU BREUIL, A. J. "A Reply to Professor Leonard's Dangers of the True-False Test in English," *Illinois Association of Teachers of English Bulletin*, 16:1-5, April 1, 1924.

The writer admits some of Professor Leonard's points, but offers refutations to most of them.

109. DU BREUIL, A. J. "True-False Test in Literature and Formal English," *Illinois Association of Teachers of English Bulletin*, 15:1-17, May 1, 1923.

Following a brief discussion are several hundred true-false exercises. These cover various periods of English and American literature, also a few classics.

110. EATON, M. P. "New Style Examinations in English at the Wadleigh High School," *Bulletin of High Points*, 5:3-16, June, 1923.

A short discussion of new-type examinations is followed by reproductions of a number of those actually used at Wadleigh High School.

111. FARWELL, H. W. "The New Type Examinations in Physics," *School and Society*, 19:315-22, March 15, 1924.

This discussion of new-type tests includes examples of several forms of tests and states a number of points learned through their use.

112. FENTON, NORMAN and LEHMAN, H. C. "The True-False Question and the Student's Sense of Fairness," *School and Society*, 28:115-16, July 28, 1928.

This suggests that students be allowed to qualify their answers to true-false questions, and gives some data as to what happens when they do so.

113. FENTON, NORMAN and WORCESTER, D. A. "New-Type Examinations and Their Daily Use in the Classroom," *An Introduction to Educational Measurements*. Boston: Ginn and Company, 1928, Chapter IV.

A general, but practical, treatment of the subject, dealing with eight or ten types of tests.

114. FORAN, T. G. "Methods of Scoring Alternative Response and Multiple Choice Tests," *Catholic Educational Review*, 23:84-91, February, 1925.

The writer presents experimental evidence to support the view that the R-W method of scoring is not satisfactory, but the  $R - \frac{W}{2}$  method is better, for alternative tests.

115. FOSTER, R. R. and RUCH, G. M. "On Corrections for Chance in Multiple-Response Tests," *Journal of Educational Psychology*, 18:48-51, January, 1927.

Data based on testing about two thousand pupils show higher correlation with the criterion when wrongs and omissions are also taken account of than when rights alone are used, but indicate that the formula,  $\text{Score} = R - \frac{W}{N-1}$ , over-penalizes slightly.

116. FRITZ, M. F. "Guessing in a True-False Test," *Journal of Educational Psychology*, 18:558-61, November, 1927.

The writer cites data that show the tendency to answer true-false tests affirmatively more often than negatively. He therefore concludes that if wrong answers are to affect the scores, the tests should contain more affirmative than negative statements.

117. GATES, A. I. "The True-False Test as a Measure of Achievement in College Courses," *Journal of Educational Psychology*, 12:276-87, May, 1921.

Data based on testing over 600 college students are given. True-false tests are shown to be more reliable and more valid than essay examinations, to correlate more highly with intelligence scores, and are said to possess many other advantages.

118. GILES, J. T. "Improving the Objective-Test Question," *School Review*, 35:286-88, April, 1927.

This suggests a variation of true-false exercises in which none or only one of several statements is false.

119. GRAY, W. S., et al. "Informal Reading Tests," *Twenty-fourth Yearbook of the National Society for the Study of Education*, Part I. Bloomington, Illinois: Public School Publishing Company, 1925, p. 233-64.

These pages contain a number of concrete and helpful suggestions as to how any teacher may construct tests in the field of reading.

120. GREENE, C. E. "New Type Tests," *Research Monograph*, No. 3. Denver: Public Schools, 1926. 35 p.

This monograph contains a brief but helpful discussion of the merits and demerits of essay and new-type examinations, also of the construction and use of the latter. This is followed by examples showing how a number of varieties of objective tests may be employed in various school subjects.

121. GREENE, H. A. "A New Correction for Chance in Examinations of Alternate-Response Type," *Journal of Educational Research*, 17:102-7, February, 1928.

The writer suggests that alternative tests consist of pairs of items, one of each pair presenting the fact dealt with in the affirmative, and the other in the negative.

122. HAHN, H. H. "A Criticism of Tests Requiring Alternative Responses," *Journal of Educational Research*, 6:236-40, October, 1922.

Hahn criticizes alternative tests as undesirable because they do not encourage worth-while objectives, and the score has no definite meaning.

123. HAIG, A. F. "Testing for Power to Organize Thought," *English Journal*, 16:807-10, December, 1927.

A so-called "organization test" for use in junior high-school composition is reproduced and discussed briefly.

124. HAMMOND, E. L. "A Study of the Reliability of an Objective Examination in Ninth-Grade English," *School Review*, 35:45-51, January, 1927.

A study of the reliability of three types of objective tests in English did not show that any one of them was definitely more reliable than the others, but did indicate that they were more reliable than essay examinations.

125. HARDY, R. E. "New Types of Tests in Social Science," *Historical Outlook*, 14:326-28, November, 1923.

This is a discussion of what tests in social science should measure. It lists reading ability, memory, ability to classify, power to criticize and correct, and emotional response.

126. HOLZINGER, K. J. "On Scoring Multiple-Response Tests," *Journal of Educational Psychology*, 15:445-47, October, 1924.

Holzinger shows that when all those being tested finish the test, the number of right answers may be taken as the score, no deduction being made for the wrong ones.

127. HOPKINS, L. T. *The Construction and Use of Objective Examinations*. Boulder: College of Education, University of Colorado, 1926. 119 p.

Brief discussions of true-false, completion, and multiple-choice tests are followed by long examples of these three types in about fifteen school subjects, most of which belong in the high school.

128. JAMES, H. W. "Technique in the Construction of a Teacher's Own Objective Tests," *Peabody Journal of Education*, 4:240-43, January, 1927.

A brief but helpful treatment of the topic, which suggests nine general principles and also several concerning specific types of tests.

129. KNIGHT, F. B. "Data on the True-False Test as a Device for College Examination," *Journal of Educational Psychology*, 13: 75-80, February, 1922.

After presenting data on the validity of a true-false test in physics, the writer concludes that it is at least as valid as the essay examination. In the test he provides for answers of true, false and uncertain.

130. KOHS, S. C. "High Test Scores Attained by Subaverage Minds," *Psychological Bulletin*, 17:1-5, January, 1920.

This points out that although the chances of guessing half right and half wrong is greater than any other possibility, it is only slightly greater and has frequently been overestimated.

131. KOLSTOE, S. O. "Reactions to True-False Tests," *School of Education Record of the University of North Dakota*, 11:54-55, April, 1926.

Responses from almost 300 students in a teachers' college showed that only one-ninth preferred the essay type, also that one-fourth felt that true-false scores were not satisfactory.

132. KREY, A. C. "What Does the New-Type Examination Measure in History?" *Historical Outlook*, 19:159-62, April, 1928.

This article reports the experience of a university department of history with new-type tests. A number of their advantages and disadvantages are given, the general conclusion being that they should not entirely or even chiefly replace discussion examinations.

133. LAIRD, D. A. "A Note on the Shortening of Examinations," *Journal of Educational Psychology*, 15:116-17, February, 1924.

This reports a study indicating that a twenty-question objective test is almost as reliable as an eighty-question one and that the correlation between students' estimates of their marks and their actual marks on an objective test is low.

134. LEE, BALDWIN. "Some Faults Common in Informal Objective Tests Made by High School Teachers," *Educational Administration and Supervision*, 14:105-13, February, 1928.

The chief feature of this article is a rather large number of items illustrative of common faults in test making and of how these faults may be corrected. It is very practical and should be decidedly helpful.

135. LEHMAN, H. C. "Does It Pay to Change Initial Decisions in a True-False Test?" *School and Society*, 28:456-58, October 13, 1928.

A study of a class of fifty students showed that changes of initial decisions by superior students tend to help their scores and those by inferior students to lower theirs.

136. LEONARD, S. A. "Dangers of the True-False Test in English," *Illinois Association of Teachers of English Bulletin*, 16:8-11, December 1, 1923.

A criticism of Miss Du Breuil's true-false tests in literature and of such tests in general, but not an argument against ever using true-false exercises.

137. LEONARD, S. A. "More Words by the Advocatus Diaboli," *Illinois Association of Teachers of English Bulletin*, 16:5-12, April 1, 1924.

In this, Leonard replies to Miss Du Breuil's response to his criticism of her true-false tests. He reiterates some of his previous statements and tells of his experience with true-false tests, giving several of the latter.

138. McAFFEE, L. O. "The Reliability of Non-Standardized Point Tests," *Elementary School Journal*, 24:579-85, April, 1924.

Data are given which tend to show that point or objective tests are more valid than discussion examinations and single-answer tests slightly more so than yes-no ones.

139. McCALL, W. A. *How to Measure in Education*. New York: The Macmillan Company, 1922, p. 119-33, 193-318.

The first reference contains a discussion of the use of informal examinations, especially true-false tests, with which it deals in some detail. The second one was written with standardized tests in mind, but contains some suggestions and principles applicable to informal testing.

140. McCALL, W. A. "A New Kind of School Examination," *Journal of Educational Research*, 1:33-46, January, 1920.

This article, which deals with true-false tests, was the first to attract general attention to the so-called "new examination." It describes the method of making, giving, and scoring such tests.

141. McCLUSKY, H. Y. and CURTIS, F. D. "A Modified Form of the True-False Test," *Journal of Educational Research*, 14:213-24, October, 1926.

A comparison of the ordinary true-false test with one in which false statements are to be corrected shows that the latter is superior in a number of points.

142. McCLUSKY, H. Y. and CURTIS, F. D. "A Modified Form of the True-False Test," *General Science Quarterly*, 11:112-16, January, 1927.

A shorter treatment than that by the same authors in the *Journal of Educational Research*, but along the same lines.

143. McELHANN, J. C. "Improving Instruction Through Point Tests," *Peabody Journal of Education*, 3:131-38, November, 1925.

An experiment with several varieties of objective tests indicated their superiority to the discussion examination; therefore the writer strongly recommends them.

144. MALMUD, R. S. "Controlled vs. Free Completion," *American Journal of Psychology*, 36:401-11, July, 1925.

The results of trying out both controlled and free completion tests show that the average correlation with intelligence tests is slightly higher for the latter.

145. MARSH, W. R., *et al.* "Report of the Commission on New Types of Examinations, Etc." New York: College Entrance Examination Board, 1923. 39 p.

This includes the commission's report, which cites some evidence favorable to the new types, a review of this evidence pointing out that it has little weight, and several other minor reports.

146. MARTIN, D. H. "A Comparison of Objective Examinations in American History," *American School Board Journal*, 76:49, 130, 132, April, 1928.

An experimental study indicates that recall tests are more valid and reliable than true-false and multiple-answer tests and that correcting scores for chance has little effect on reliability of scores or relative standing of pupils.

147. MATHEWS, C. O. "The Effect of Position of Printed Response Words upon Children's Answers to Questions in Two-Response Types of Tests," *Journal of Educational Psychology*, 18:445-57, October, 1927.

Experimental data are presented which show that pupils tend to mark the upper rather than the lower and the left rather than the right of two given responses.

148. MATIMORE, P. H. "Objective Examinations of Recognition Type," *Catholic School Interests*, 5:398-400, January, 1927.

This contains examples of alternative, multiple-choice, and matching exercises, with a brief criticism and discussion.

149. MEANS, E. R. "Objective Examinations in Science," *The High School*, 4:127-30, May, 1927.

The writer urges the use of new-type tests in science, offers suggestions as to their construction, answers some adverse criticisms and gives a few examples.

150. MILLER, G. F. "Formulas for Scoring Tests in Which the Maximum Amount of Chance is Determined," *Journal of Educational Psychology*, 16:304-15, May, 1925.

Miller points out a fault in using the number of right answers as the score if the maximum amount of chance is known. He shows how it may be easily corrected by the use of a formula that he gives.

151. MILLER, G. F. *Objective Tests in High School Subjects*. Norman, Oklahoma: G. F. Miller, 1926. 168 p.

This contains a large number of actual objective tests. Following a brief general discussion are from twelve to eighteen pages of objective exercises in each of nine high-school subjects. Various types of exercises are illustrated for each subject.

152. MILLER, G. F. "A Variation in the 'True and False' Achievement Test," *School and Society*, 20:250-51, August 23, 1924.

Miller suggests that true-false tests include some statements the truth or falsity of which depends upon conditions not stated. He gives an example of such a test and points out its advantages.

153. MILLER, W. S. "An Objective Test in Educational Psychology," *Journal of Educational Psychology*, 16:237-46, April, 1925.

A psychology test of 210 true-false, multiple-choice and completion items was used for ten quarters. The results correlated .55 with average honor points and .37 with intelligence test scores.

154. MOORE, R. U. "Objective Tests in High-School Mathematics," *The High School*, 4:124-27, May, 1927.

The writer gives and discusses briefly several objective exercises in algebra and geometry.

155. MORROW, J. M. "Concerning 'New Style' Tests in English," *Bulletin of High Points*, 6:16-19, June, 1924.

An argument against "new style" tests in English and a suggestion that essay examinations can be so modified as to lessen the labor of scoring.

156. MOYER, F. E. "New Types of History Tests," *Historical Outlook*, 14:323-24, November, 1923.

This describes the use of several of the new types of tests and points out their merits and remedies for their weaknesses.

157. ODELL, C. W. "Another Criticism of Tests Requiring Alternative Responses," *Journal of Educational Research*, 7:326-30, April, 1923.

The writer replies to Hahn's criticism of such tests and defends the right-minus-wrong method of scoring as well as the use of alternative-response tests.

158. ODELL, C. W. "Objective Measurement of Information," *University of Illinois Bulletin*, Vol. 23, No. 36, Bureau of Educational Research Circular No. 44. Urbana: University of Illinois, 1926. 27 p.

Thirty-seven varieties of objective or near-objective tests are illustrated and discussed briefly. There is also a short general treatment of such tests.

159. ODELL, C. W. "Possibilities of the 'New Examination,'" *High School Conference Proceedings*, 1926. Urbana: University of Illinois, 1926, p. 13-21.

A treatment of the merits and limitations of the new examination is followed by examples of a number of types and suggestions as to possibilities of using them.

160. ORLEANS, J. S. "Manual of Instruction in Objective Tests for Use at Teachers' Conferences," *University of the State of New*

*York Bulletin*, No. 902. Albany: University of the State of New York Press, 1928. 36 p.

This deals with objectivity, validity, scores, types of questions, simple statistical procedures, etc., and supplies samples for certain experiments which are suggested.

161. ORLEANS, J. S. "Manual on the Local Construction and Uses of Objective Tests," *University of the State of New York Bulletin*, No. 893. Albany: University of the State of New York Press, 1927. 57 p.

Orleans illustrates the construction of several types of the new examination, treats of the statistical handling of scores, discusses the use of results, and so forth.

162. ORLEANS, J. S. and SEALY, G. A. *Objective Tests*. Yonkers: World Book Company, 1928. 373 p.

A detailed account of the actual carrying out of a plan for the local construction and use of objective tests is given. There are also a few more general chapters and many examples of tests.

163. PATERSON, D. G. *Preparation and Use of New-Type Examinations*. Yonkers: World Book Company, 1925. 87 p.

The principles underlying adequate examinations are presented, eight kinds of new-type questions are discussed and illustrated, rather full directions for constructing, administering, and scoring them are given, and a fairly long annotated bibliography is included.

164. PATERSON, D. G. "Use of New-Type Examination Questions in Psychology at the University of Minnesota," *School and Society*, 28:369-71, September 22, 1928.

An account of the attempt of the department of psychology at the University of Minnesota to accumulate a large file of tested objective exercises.

165. PATERSON, D. G. and LANGLIE, T. A. "Empirical Data on the Scoring of True-False Tests," *Journal of Applied Psychology*, 9:339-48, December, 1925.

On the basis of experimental data, the writers conclude the right-minus-wrong method of scoring lowers reliability and probably does not increase validity, furthermore that the true-false test often does not possess high validity.

166. PATTEE, E. B. "New Type Tests in Modern Languages," *The High School*, 4:140-45, May, 1927.

This includes suggestions for making and using tests, and examples of various types in French.

167. POPENOË, HERBERT. "Testing the Results of Science Instruction; Some New Types of Tests," *General Science Quarterly*, 10:339-43, November, 1925.

An argument for new-type examinations, followed by examples of several kinds and a brief discussion of evaluating examinations.

168. RANKIN, P. T. "The Improvement of Examinations in English," *American Schoolmaster*, 21:124-32, April 15, 1928.

A number of examples of test exercises are given, distinctions between good and bad ones pointed out, and so forth.

169. REEVE, W. D. "The Place of New-Type Tests in Teaching Mathematics," *Teachers College Record*, 29:693-703, May, 1928.

Following a discussion of the chief types of tests are criteria for the construction of those of the new-type, illustrations of several varieties, and statements of some of their weaknesses.

170. REMMERS, H. H., MARSCHAT, L. E., BROWN, ADELAIDE, and CHAPMAN, ISABELLA. "Experimental Study of the Relative Difficulty of True-False, Multiple-Choice and Incomplete-Sentence Types of Examination Questions," *Journal of Educational Psychology*, 14:367-72, September, 1923.

Experimentation with a limited number of subjects indicated that true-false and completion tests are more difficult than multiple-choice tests.

171. REMMERS, H. H. and REMMERS, E. M. "The Negative Suggestion Effect of True-False Examination Questions," *Journal of Educational Psychology*, 17:52-56, January, 1926.

An experiment with 136 paired pupils indicated that negative carry-over effects from true-false exercises need to be feared.

172. RICH, G. J. "A Scale for Scoring Tests with Alternative Answers," *American Journal of Psychology*, 36:597-600, October, 1925.

Rich suggests a method of scaling multiple-response tests.

173. RICHARDS, O. W. "High Test Scores Attained by Subaverage Minds," *Journal of Experimental Psychology*, 7:148-56, April, 1924.

Richards points out the possible and probable effects of guessing on test scores and suggests a weighted system which, he thinks, gives more accurate scores.

174. RICHARDS, O. W. and KOHS, S. C. "High Test Scores Attained by Sub-Average Minds," *Journal of Educational Psychology*, 16:8-17, January, 1925.

In this discussion of scoring true-false tests, the writers report an experiment, recommend that 75 or 100 items be used in order to reduce the effect of chance, and give certain other suggestions concerning the construction of such tests.

175. ROBERTS, H. M. and RUCH, G. M. "Minor Studies on Objective Examination Methods. I. The Negative Suggestion Effect of True-False Tests," *Journal of Educational Research*, 18:112-16, September, 1928.

Experimental studies by the writers and others indicate slight and probably temporary negative suggestion effects of true-false tests, also somewhat greater but probably temporary positive or helpful effects.

176. RUCH, G. M. *The Improvement of the Written Examination.* Chicago: Scott, Foresman and Company, 1924. 193 p.

This book deals with several of the most often used types of newer objective tests, discussing their construction, use, relative merits, reliability, validity, and so forth. Some attention is also given to written examinations in general, the unreliability of marks, and related topics.

177. RUCH, G. M. and CHARLES, J. W. "A Comparison of Five Types of Objective Tests in Elementary Psychology," *Journal of Applied Psychology*, 12:398-403, August, 1928.

This study of recall, true-false, and two, three, and five-response multiple-answer tests gives reliability coefficients, time required to take, and compares scoring by number right with the use of the  $R - \frac{W}{N-1}$  formula.

178. RUCH, G. M. and DEGRAFF, M. H. "Corrections for Chance and 'Guess' vs. 'Do Not Guess' Instructions in Multiple-Response Tests," *Journal of Educational Psychology*, 17:368-75, September, 1926.

A short, but excellent, treatment of the subject. Eleven conclusions, based upon experimental evidence, are given. Corrections for chance are shown to have both desirable and undesirable effects.

179. RUCH, G. M. and STODDARD, G. D. "Comparative Reliabilities of Five Types of Objective Examinations," *Journal of Educational Psychology*, 16:89-103, February, 1925.

The data presented by these writers suggest that the use of "Score =

$R - \frac{W}{N-1}$  usually decreases the reliability of the scores and therefore should be abandoned.

180. RUCH, G. M. and STODDARD, G. D. "Informal Objective Examination Methods," *Tests and Measurements in High-School Instruction*. Yonkers: World Book Company, 1927, Part III.

The authors discuss the place of new-type tests, the unreliability of traditional examinations and the validity and reliability of several types of tests. Examples, advantages and disadvantages of the common types of objective tests are given.

181. RUCH, G. M., et al. *Objective Examination Methods in the Social Studies.* Chicago: Scott, Foresman and Company, 1926. 116 p.

This contains several studies dealing with the reliability of traditional and new-type tests, the relative merits of several varieties of the latter, and related topics.

182. SPENCER, P. L. "Improvement of Teaching by Means of 'Home-Made' Non-Standard Diagnostic Tests and Remedial Instruction," *School Review*, 31:276-81, April, 1923.

The writer describes the actual use of such tests in algebra and shows how it makes individual and remedial instruction more efficient.

183. STORMZAND, M. J. *American History Teaching and Testing*. New York: The Macmillan Company, 1926. 181 p.

Following a short discussion of supervised study and related topics are a treatment of the new examination, more than 100 pages of tests on Beard and Bagley's *The History of the American People*, and about twenty pages of topics for recitations on the same book. This material should be very helpful to teachers of history.

184. STOWE, V. M. "New Technic in Examinations," *Journal of Chemical Education*, 4:1293-96, October, 1927.

Stowe describes an electrical device by which multiple-answer tests may be given to a class and answers automatically recorded.

185. STRICKLAND, V. L. "Objective Tests," *Kansas State Agricultural College Bulletin*, Vol. 8, No. 2. Manhattan: Kansas State Agricultural College, 1924. 23 p.

A discussion of the unreliability of subjective tests is followed by suggestions for the construction and use of objective tests and examples of several varieties.

186. TOOPS, H. A. "Trade Tests in Education," *Teachers College, Columbia University Contributions to Education*, No. 115. New York: Bureau of Publications, Teachers College, Columbia University, 1921, p. 39-62.

A comparison of recall, multiple-answer, and true-false tests given to 124 individuals indicated that both validity and reliability decreased in the order named if equal numbers of exercises were used, but that when equal amounts of time were employed the reliability was almost the same. There is also a general discussion of new-type tests and a number of examples.

187. TRABUE, M. R., et al. "Increasing the Usefulness of Examinations," *Proceedings of the Thirty-Sixth Annual Meeting, Association of American Medical Colleges*, 1925, p. 31-53.

Trabue's presentation of new-type tests, illustrated with exercises in medical subjects, is followed by general discussion by a number of those present at the thirty-sixth annual meeting of the Association of American Medical Colleges.

188. TRESSLER, J. C. "The New Type of Examination," *English Journal*, 13:709-15, December, 1924.

This is an argument for examinations in general, and the new type in particular, with examples of the latter, a list of its advantages, and a brief defense against objections.

189. TRILLING, M. B. and HESS, ADAH. "Informal Tests in Teaching Textiles and Clothing," *Journal of Home Economics*, 13:483-89, October, 1921.

The writers urge the use of tests similar to standardized ones and offer some suggestions as to how to employ them in courses on textiles and clothing.

190. TRYON, R. M. "Standard and New Type Tests in the Social Studies," *Historical Outlook*, 18:172-78, April, 1927.

A portion of this contains examples and discussion of new-type tests, with a number of references.

191. VAN WAGENEN, N. B. "Written Examinations and How to Make Them More Objective," *Division of Reference and Research Bulletin*, No. 70. Cleveland: Board of Education, 1924. 7 p.

This consists of a number of suggestions along the line indicated and about a dozen brief examples.

192. VON BORGERSRODE, FRED. "The Use of Informal Objective Tests in High School," *School of Education Record of the University of North Dakota*, 13:67-69, 77-78; April, May, 1928.

The need for new-type examinations is pointed out, various kinds are enumerated, and favorable and unfavorable criticisms given. In the second part, thirty principles concerning the preparation and form of objective tests are stated.

193. WALKER, H. M. "Certain Mathematical Questions Suggested by the True-False Test," *American Mathematical Monthly*, 34:503-15, December, 1927.

This deals with several questions of practical and several of theoretical interest to makers and users of true-false tests. Among the former are methods of scoring and the effect of guessing.

194. WAPLES, DOUGLAS. "The Best-Answer Exercise as a Teaching Device," *Journal of Educational Research*, 15:10-21, January, 1927.

This contains examples of best-answer tests in several high-school subjects, a table of "elements of best-answer exercises in different subjects" and a number of helpful suggestions for using such exercises.

195. WEIDEMANN, C. C. "How to Construct the True-False Examination," *Teachers College, Columbia University Contributions to Education*, No. 225. New York: Bureau of Publications, Teachers College, Columbia University, 1926. 118 p.

This is the most complete treatment of this one type of test in print. Present practice and desirable modifications in both form and content are considered, and many helpful suggestions given.

196. WEIDEMANN, C. C. "Limitations of the True-False Statement," *Journal of Educational Method*, 7:214-15, February, 1928.

The writer points out certain limitations of true-false statements, and makes several suggestions as to their formulation and use.

197. WEINLAND, J. D. "A Note on the Right-Wrong Examination," *Journal of Educational Psychology*, 18:266-67, April, 1927.

It is pointed out that by tabulating the results on single items separately an instructor is able to check up on certain elements in his own instruction.

198. WEISS, A. P. "The Ebbinghaus Conjectural Method of Examination," *Journal of Experimental Pedagogy*, 1:320-34, June, 1912.

This describes and illustrates what is usually called the completion test, discusses its value, compares it with the question and answer type, advocates its use and gives some attention to how often tests are needed and related topics.

199. WELLS, A. B. "Tests in Biology and General Science," *School Science and Mathematics*, 22:826-33, December, 1922.

Examples of two or three varieties of new-type tests in the subjects named are given.

200. WEST, P. V. "A Critical Study of the Right-Minus-Wrong Method," *Journal of Educational Research*, 8:1-9, June, 1923.

The writer concludes that the right-minus-wrong method of scoring is of doubtful reliability and needs further investigation.

201. WILKINS, L. A. "Suggestions as to the Formation of Questions in Standardized Examinations in Modern Languages," *Bulletin of High Points*, 5:27-35, June, 1923.

Suggestions and illustrations for testing vocabulary, verb forms, idioms, grammar, reading, and composition are given.

202. WILL, A. J. "Certain Science Tests and the Use of a Correction Formula," *Ohio State University Bulletin*, Vol. 27, No. 16. Columbus: Ohio State University, 1923, p. 325-30.

The writer suggests and illustrates the use of true-false tests in science, and also advocates the use of the  $R - \frac{W}{N-1}$  scoring formula.

203. WILLING, M. H. "Latin Tests and Examinations," *High School Conference Proceedings*, 1927. Urbana: University of Illinois, 1928, p. 101-7.

The purposes, content and construction of Latin tests are treated, and five different varieties of such tests defined.

204. WILSON, H. E. "The Continuity Test in History-Teaching," *School Review*, 34:679-84, November, 1926.

A description of the continuity test in history and an argument for its use.

205. WOOD, B. D. *Measurement in Higher Education*. Yonkers: World Book Company, 1923, Chapters VIII-XIII.

These six chapters contain a rather full account of the use of the "new examination" in many courses at Columbia University. Lengthy examples are included and many data on its reliability and validity are given.

206. Wood, B. D. "The Measurement of College Work," *Educational Administration and Supervision*, 7:301-34, September, 1921.

This is the report of the use of the new examination in the Contemporary Civilization course at Columbia University, accompanied by general discussions of objectivity in measurement and school marks.

207. Wood, B. D. "Studies of Achievement Tests. I. The R Versus the R-W Method of Scoring 'Do Not Guess' True-False Examinations. II. The 'Internal Constitution' Versus the 'External Form' of Examination Questions," *Journal of Educational Psychology*, 17:1-22, 125-39; January, February, 1926.

Wood presents data based on several tests in various subjects which indicate that the R-W method of scoring is more valid but less reliable than merely using the number right. Also he discusses the form of tests and recommends instructions against guessing.

208. Woody, CLIFFORD. "Informal Tests as a Means for the Improvement of Instruction," *First Yearbook of Department of Elementary School Principals*. Washington: National Education Association, 1922, p. 87-94.

Woody suggests the use of ten varieties of new-type tests, and illustrates and discusses them briefly. General principles of construction and use are also stated.

209. Wooton, F. C. "New Type Tests in the Social Studies," *The High School*, 4:135-40, May, 1927.

The writer gives examples of several kinds of new-type tests, with helpful discussions of each, especially warning against common faults.

210. Worcester, D. A. "Prevalent Errors in New-Type Examinations," *Journal of Educational Research*, 18:48-52, June, 1928.

The writer points out errors commonly made in constructing new-type examinations which tend to "give away" the correct answer.

211. ——— "Experimenting with the New Type of Examination at Columbia," *School and Society*, 15:141-42, February 4, 1922.

Dean Hawkes states that "the new examination renders the final grade nearly fifty per cent more accurate than was attained under the old system."

212. ——— "Objective Achievement Tests Constructed and Used in St. Louis," *Public School Messenger*, 25:3-175, November 30, 1927.

Over forty tests in more than a dozen elementary, intermediate, and high-school subjects are given in full, with norms and directions.

213. ——— "The True-False Examination," *Atlanta High School Journal*, 1:1-7, October 12, 1922.

A brief discussion of true-false and other objective tests, with examples of each.

**PART IV. SCHOOL MARKS**

214. AIKINS, H. A. "The Reliability of 'Marks,'" *Science, New Series*, 32:18-19, July 1, 1910.

Students' marks of their own work are compared with those given by instructors. A fair amount of agreement is shown.

215. ALBRIGHT, G. H. "How Teachers Mark," *School and Society*, 3:462-67, March 25, 1916.

A discussion of differences in marking by instructors at Colorado College is followed by a few remedial suggestions.

216. BANKER, H. J. "The Significance of Teachers' Marks," *Journal of Educational Research*, 16:159-71, 271-84; October, November, 1927.

A careful study of the marks given by teachers in several buildings of a school system leads to the conclusion that they "have on the average clearly reflected the changing mental constitution of the student body."

217. BELTING, P. E. "High-School Marks," *The Community and Its High School*. New York: D. C. Heath and Company, 1923, Chapter VII.

The accuracy of marks, the qualities that teachers try to mark, and the most commonly used marking systems are discussed. Suggestions for improving marks are given, and a fairly comprehensive bibliography is included.

218. BENEDICT, H. Y. "Grades and Their Standardization at the University of Texas," *School and Society*, 3:105-7, January 15, 1916.

The standardization scheme adopted sets limits for the proportion of each passing mark and provides that any departure therefrom must be for stated reasons.

219. BILLETT, R. O. "The Scientific Supervision of Teachers' Marks," *American School Board Journal*, 74:53-54, 149, June, 1927.

This article deals with examinations and their objectives, new-type tests, adaption to individual differences, use of the normal curve in marking, and so forth.

220. BLACKHURST, J. H. "The Normal Curve as Related to High School and College Grading," *School and Society*, 13:447-50, April 9, 1921.

Blackhurst argues against the uncritical or general use of the normal curve to determine the distribution of grades, but suggests that the upper half of the curve may be followed roughly.

221. BOLTON, F. E. "Do Teachers' Marks Vary as Much as Supposed?" *Education*, 48:23-39, September, 1927.

In this article, the writer presents data to show that under ordinary circumstances teachers' marks are rather reliable. Also, he analyzes some of the data

which Starch cites to show great variability and claims that they tend to refute rather than to support Starch's conclusions.

222. BROOKS, R. C. "Uniformity of Grading in Colleges and Universities," *School and Society*, 1:32-35, January 2, 1915.

A study of the systems of marking used in twenty-nine institutions.

223. CAJORI, FLORIAN. "A New Marking System and Means of Measuring Mathematical Abilities," *School Science and Mathematics*, 14:283-93, April, 1914. Also in *Science, New Series*, 39:874-81, June 12, 1914.

The writer describes a plan of arranging students in order of ability and assigning marks according to an absolute standard. The normal curve is the basis of distribution.

224. CAMP, F. S. "Some 'Marks': An Administrative Problem," *School Review*, 25:697-713, December, 1917.

Camp relates in some detail the revision and standardization of the marking system of a particular school system.

225. CANNING, J. B. "The Meaning of Student Marks," *School Review*, 24:196-202, March, 1916.

This discussion of absolute and relative marking systems points out a few common faults and states a few general principles.

226. CATTELL, J. MCK. "Examinations, Grades and Credits," *Popular Science Monthly*, 66:367-78, February, 1905.

After arguing that the meaning of grades is doubtful and that college-entrance examinations are productive of much harm, Cattell proposes a normal distribution of marks with 10, 20, 40, 20 and 10 as the per cents used.

227. CLOWER, F. W. "Anonymous Grading," *School and Society*, 24:516-18, October 23, 1926.

The writer proposes a plan of numbering examination papers so that the instructor does not know to whom each belongs until after he has graded it, and urges the use of this plan to insure fair marking.

228. COLVIN, S. S. "Marks and the Marking System as an Incentive to Study," *Education*, 32:560-72, May, 1912.

Colvin defends the use of marks, answers a number of the common objections to them and pleads for the use of the best possible system. This, he says, will be objective and will do away with many, if not all, of the undesirable results of present systems.

229. COURTER, C. V., et al. "Uniform Marking System for the High Schools of Michigan," *Michigan Education Journal*, 3:280-81, January, 1926.

This report recommends the use of a five-letter system of marking achievement, a four numeral system of marking school citizenship, a normal distribution of marks, the elimination of percentile marks, and so forth.

230. DEARBORN, W. F. "School and University Grades," *Bulletin of the University of Wisconsin*, No. 368, High School Series, No. 9. Madison: University of Wisconsin, June, 1910. 59 p.

This is one of the earliest important studies of the subject. It deals with the distribution of ability, inequalities in marks, marks in school subjects and in the university, and so on.

231. DU FRAIN, F. J., et al. "Uniform Marking System for High Schools," *Michigan Education Journal*, 4:356-58, February, 1927.

This is the report of a committee of the Michigan Department of High School Principals. It presents some data on the marking systems used in 133 high schools, especially in regard to the practice of giving separate citizenship marks.

232. ELLIS, R. S. "The Correction of Constant Errors in College Marks," *School and Society*, 24:432-36, October 2, 1926.

The writer suggests that the average of intelligence test scores and English 1 marks be taken as representing the ability of a class and that the average mark given students be made to conform thereto.

233. FINKELSTEIN, I. E. "The Marking System in Theory and Practice," *Educational Psychology Monographs*, No. 10. Baltimore: Warwick and York, 1913. 88 p.

This is a study of the distribution of marks at Cornell University, showing general tendencies and variations among instructors. It is recommended that a five point system with approximately fixed per cents in each group be used.

234. FOSTER, W. T. "Scientific Distribution of Grades at Reed College," *Science, New Series*, 35:887-89, June 7, 1912.

The plan used at Reed College is based upon the assumption that the group is selected and hence grades should be skewed upward. It consists of ten marks, each of which is to be given to a certain per cent of students.

235. FOSTER, W. T. "Scientific Versus Personal Distribution of College Credits," *Popular Science Monthly*, 78:388-408, April, 1911.

After giving a number of graphs and tables to show how greatly instructors' distributions of marks vary, the writer urges that a fixed normal or somewhat skew curve of marking be followed.

236. FRENCH, H. P. "A Practical Method of Translating Objective Scores into Percentage Marks," *Journal of Educational Method*, 6:60-61, October, 1926.

A short but clear explanation of an easy method of converting scores into percentage marks.

237. GRAY, C. T. "Variations in the Grades of High School Pupils," *Educational Psychology Monographs*, No. 8. Baltimore: Warwick and York, 1913. 120 p.

A study of the relative standing of pupils in the different years of high school. It gives numerous distributions of marks, discusses their variations, and so forth.

238. HARTMAN, L. W. "Grading Systems Again," *School and Society*, 4:388-92, September 9, 1916.

This gives an account of what was done at the University of Nevada for the purpose of securing greater uniformity of marks and otherwise improving the marking system.

239. HENRY, R. L. "Is Anonymous Grading Wise?" *School and Society*, 25:77-78, January 15, 1927.

The writer opposes anonymous marking, and states that knowledge of the individual being marked should play a part in determining the mark given. He especially replies to Clower's article in favor of anonymous marking.

240. HONEYWELL, R. J. "A Convenient Grading System," *Educational Review*, 68:26-28, June, 1924.

The writer proposes a grading system based on counting a certain number of units on each test or piece of work and adding the scores to give a definite final mark.

241. HOPKINS, L. T. "The Marking System of the College Entrance Examination Board," *Harvard Monographs in Education*, Series 1, No. 2. Cambridge: Graduate School of Education, Harvard University, 1921. 15 p.

This gives distributions of marks in a number of subjects during almost twenty years, and discusses briefly the effect of the methods of marking employed.

242. HULTEN, C. E. "The Personal Element in Teachers' Marks," *Journal of Educational Research*, 12:49-55, June, 1925.

A study indicates that teachers are not consistent in giving high or low grades and, therefore, that no uniform correction can be applied to make the marks of different teachers comparable. Also it is shown that marks are too unreliable to be used for determining promotion.

243. HUMPHRIES, F. Y. "Some Principles Underlying Grading," *English Journal*, 12:33-38, January, 1923.

After citing examples of variations in marks, the writer urges that strict minimum promotional requirements be set and that all those concerned agree upon a definite system of marks to be used.

244. HYDE, A. L., et al. "The Grading System of the University of Missouri," *Bulletin of the Society for the Promotion of Engineering Education*, Vol. 4, No. 5. Lancaster, Pennsylvania: Society for the Promotion of Engineering Education, August, 1914, p. 173-84.

This contains a description and advocacy of the Missouri system, also a little adverse criticism.

245. JAGGARD, G. H. "Improving the Marking System," *Educational Administration and Supervision*, 5:25-35, January, 1919.

The writer tells of an experiment in improving teachers' marks in Law-

rence, Kansas. Careful statements of what marks meant were worked out, distributions were made and studied, and so forth.

246. JAMES, B. B. "Underlying Principles of Assigning Grades," *School and Society*, 5:739-41, June 23, 1917.

A number of the questions which arise are stated, and partial answers given to some of them.

247. JOHNSON, F. W. "The Marking System," *The Administration and Supervision of the High School*. Boston: Ginn and Company, 1925, Chapter XV.

After showing the variability of marks, Johnson discusses their meaning, distribution, the symbols to be used, and other pertinent topics.

248. JOHNSON, F. W. "A Study of High-School Grades," *School Review*, 19:13-24, January, 1911.

This gives data showing the variations in grades issued by different teachers and departments. It was the earliest study of this sort to attract general attention.

249. JOHNSON, R. H. "The Coefficient Marking System," *School and Society*, 7:714-16, June 15, 1918.

This proposes and explains a method of marking that makes the "level" uniform, retains relative differences, and possesses a number of other advantages. The mark recommended is obtained by dividing the one assigned by the class median.

250. KARRER, ENOCH. "Reflections on a New Method of Grading," *School and Society*, 24:582-84, November 6, 1926.

The requirements to be met by a grading system are stated. They center about the fact that a grade should be a simple function of "speed of learning."

251. KELLICOTT, W. E. "The Examination of Certain Objections to the Missouri System of Grading," *School and Society*, 2:81-88, July 17, 1915.

The writer refutes a number of objections to the Missouri plan, but does not consider it a panacea for all the evils connected with marking.

252. KELLY, F. J. "Teachers' Marks, Their Variability and Standardization," *Teachers College, Columbia University Contributions to Education*, No. 66. New York: Bureau of Publications, Teachers College, Columbia University, 1914. 139 p.

This very notable study deals with marking standards in elementary and high schools and colleges, also the marking of examination papers. The great variability and unreliability of marks as ordinarily given is clearly shown.

253. KENNEDY, MARGARET. "An Experiment in Grading," *School and Society*, 28:18-19, July 7, 1928.

No marks were reported during a term, but as helpful criticisms as possible made. The marks at the end of the term were above average.

254. KYTE, G. C. "The Evolution of a Marking System from Chaos to Order," *Educational Administration and Supervision*, 6:9-16, January, 1920.

The writer reports results obtained in a given school by teachers cooperatively developing a marking system. A five-point exactly defined system was adopted.

255. MASTERS, H. G. "Standards for Rating Pupils," *Journal of Educational Method*, 1:176-77, January, 1922.

Masters outlines the use of a five-letter rating scheme based upon descriptions and statements which cover four phases of work.

256. MERSEREAU, E. B. "An Experiment in Marking," *School Review*, 34:348-56, May, 1926.

The writer analyzed a course into several abilities, selected activities for each, had standards set by students, tested and rated each activity separately, and finally averaged marks to secure those for the term.

257. MEYER, M. F. "Experiences with the Grading System of the University of Missouri," *Science, New Series*, 33:661-67, April 28, 1911.

Meyer discusses the working of the normal distribution plan of grading adopted at Missouri and shows that it has greatly lessened variability, but that some further improvements are needed.

258. MEYER, M. F. "The Grading of Students," *Science, New Series*, 28:243-50, August 21, 1908.

After showing how instructors vary in the grades they assign, Meyer explains why they do so, and urges the use of a normal curve of distribution.

259. MEYER, M. F. "The Limit of Uniformity in the Grading of College Students by Different Teachers," *Science, New Series*, 40: 530-32, October 9, 1914.

The need for differentiating between what is expected of students of different classes is emphasized and the application of the normal curve to the distribution of marks advocated.

260. ODELL, C. W. "High-School Marking Systems," *School Review*, 33:346-54, May, 1925.

A summary of the marking systems used in about three hundred Illinois high schools, showing that about one hundred different ones are in use.

261. OGAN, R. W. and EWING, D. H. "Reducing Variability in Teachers' Scoring," *Educational Research Bulletin (Ohio State University)*, 7:214-16, May 16, 1928.

This article describes an experiment conducted in an educational measurements class with the purpose of rendering scoring more uniform.

262. PEARSON, F. B. "The Passing Grade in Schools," *Ohio Teacher*, 49:61-62, October, 1928.

A discussion of why the passing mark is often 75 per cent, followed by some argument in favor of making it 100 per cent.

263. PRESSEY, S. L. "Fundamental Misconceptions Involved in Current Marking Systems," *School and Society*, 21:736-38, June 20, 1925.

Certain reasons why marks do not follow a normal curve are suggested. It is urged that the marking system be more largely influenced by educational objectives than at present.

264. RATHBUN, J. C. "Ranking Students from Their Literal Grades," *School and Society*, 16:326-35, September 16, 1922.

The writer outlines and illustrates a method of converting literal grades to a common numerical basis.

265. REEDER, J. C. "The Geneseo Scale of Qualities," *Elementary School Journal*, 20:292-96, December, 1919.

A scale defining the quality of work denoted by each of the five-letter marks used at Geneseo, Illinois, is described.

266. RICH, S. G. "Economy and Fairness in Marking," *Journal of Educational Method*, 5:67-70, October, 1925.

A description of a point method of marking pupils' work which the writer claims eliminates unfairness, saves time, and indicates the matters needing further emphasis.

267. ROGERS, J. H. "A Uniform Grading System," *School and Society*, 22:160-62, August 8, 1925.

The writer recommends the use of the "Missouri" marking system with an additional feature which he considers corrects its one serious defect, that it does not secure uniformity of grading in different courses.

268. ROREM, S. O. "A Grading Standard," *School Review*, 27:671-79, November, 1919.

The need for specific definitions of grades is stated and discussed.

269. RUGG, H. O. "Teachers' Marks and Marking Systems," *Educational Administration and Supervision*, 1:117-42, February, 1915.

A rather comprehensive summary of the studies and writings of others, with additional material secured by Rugg.

270. RUGG, H. O. "Teachers' Marks and the Reconstruction of the Marking System," *Elementary School Journal*, 18:701-19, May, 1918.

Rugg shows the unreliability, variability, and inconsistency of teachers' marks and the reasons therefor. He also discusses the distribution of ability, the use of the normal curve, the importance of ranking, and so forth, and finally proposes a definite program for reconstructing the system.

271. RUGG, H. O. "The Teachers' Use of Statistical Distributions in Giving School Marks," *A Primer of Graphics and Statistics for Teachers*. Boston: Houghton Mifflin Company, 1925, Chapter VI.

The writer shows why the marking system commonly used needs to be reconstructed, discusses what marks really measure, and suggests a program for a new system.

272. SMITH, A. G. "A Rational College Marking System," *Journal of Educational Psychology*, 2:383-93, September, 1911.  
The writer argues for a five-point system of marks with the distribution following the normal curve more or less closely.

273. SOMERS, G. T. "A Proposed Marking System for Colleges and Universities," *Fourteenth Annual Conference on Educational Measurements*, Bulletin of the School of Education, Indiana University, Vol. 3, No. 6. Bloomington: Bureau of Cooperative Research, Indiana University, 1927, p. 3-22.  
A plan of changing scores into marks on the basis of ability of students and difficulty of tests is fully explained and illustrated.

274. SOMERS, G. T. "Students' Attitude Toward Examinations," *Bulletin of the School of Education*, Vol. 3, No. 1. Bloomington: Bureau of Cooperative Research, Indiana University, 1926. 48 p.  
This reports a study of students' attitudes concerning the pleasantness, value, purpose and function of examinations and the morality of certain acts connected therewith. Part I deals with attitudes toward examinations in general, and Part II with those toward a number of forms of new-type tests.

275. SPENCE, R. B. "The Improvement of College Marking Systems," *Teachers College, Columbia University Contributions to Education*, No. 252. New York: Bureau of Publications, Teachers College, Columbia University, 1927. 89 p.  
This presents a somewhat original scheme for giving college marks, which could be used elsewhere as well. It is based on McCall's T-score method.

276. STARCH, DANIEL. "Can the Variability of Marks be Reduced?" *School and Society*, 2:242-43, August 14, 1915.  
Several possible means of reducing the variability of teachers' marks are suggested.

277. STARCH, DANIEL. "Marks as Measures of School Work," and "A Sample Survey of the Marking System in a High School," *Educational Measurements*. New York: The Macmillan Company, 1916, Chapters II and III.  
In these chapters are data showing the unreliability of marks, with some constructive criticism concerning the marking system.

278. STARCH, DANIEL. "Marks as Measures of School Work," *Educational Psychology*. New York: The Macmillan Company, 1923, Chapter XXII.  
A discussion of the variability of marks and how it may be reduced, with many concrete data, is followed by an outline of a satisfactory marking system.

279. STARCH, DANIEL and ELLIOTT, E. C. "Reliability of Grading Work in History," *School Review*, 21:676-81, December, 1913.

280. STARCH, DANIEL and ELLIOTT, E. C. "Reliability of Grading Work in Mathematics," *School Review*, 21:254-59, April, 1913.

281. STARCH, DANIEL and ELLIOTT, E. C. "Reliability of the Grading of High-School Work in English," *School Review*, 20:442-57, September, 1912.

These three articles, which compose a unified series, probably did more than any other single stimulus to arouse the interest in marking systems and the belief in the need for their greater reliability that has manifested itself in the last two decades or less.

282. STEELE, A. G. "Training Teachers to Grade," *Pedagogical Seminary*, 18:523-32, December, 1911.

Steele tells of a plan by which teachers are brought to compare their marks with those given by others and thus to lessen subjectivity.

283. STEWART, J. L. "Uniformity of Teachers' Marks Versus Variability," *School Review*, 28:529-33, September, 1920.

The writer describes a plan of raising or lowering teachers' marks to make them conform to those given by the whole group.

284. STRUTHERS, ALICE. "An Examination of Present Marking Systems, with Suggestions for Their Improvement," *Los Angeles School Journal*, 7:9-14, March 17, 1924.

The writer favors a five-letter system, a normal distribution, special symbols for different curricula, grading on various citizenship traits, and definition of grades by means of statements.

285. SYMONDS, P. M. "Equating College Marks," *Educational Administration and Supervision*, 11:118-24, February, 1925.

The writer suggests a plan of using intelligence-test scores to guide instructors in distributing marks, assuming that the average mark of a class should bear a constant ratio to its average ability.

286. WEISS, A. P. "School Grades—To What Type of Distribution Shall They Conform?" *Science, New Series*, 36:403-7, September 27, 1912.

The writer discusses the Reed College scheme of distributing marks described by Foster, and argues that a normal rather than a skew curve should be followed.

287. WELD, L. D. "A Standard of Interpretation of Numerical Grades," *School Review*, 25:412-21, June, 1917.

This suggests a plan of changing the grades given by all teachers to the same basis.

288. WETZEL, W. A. "Use of the Normal Curve of Distribution in Estimating Students' Marks," *School Review*, 29:373-78, May, 1921.

Certain fallacies in the way the normal curve is used are pointed out and several conclusions stated. Marks should depend on objective achievement, not position in a group. The chief value of the curve is in determining the proper relation between the course of study and standards of achievement.

289. WHITTEN, C. W. "Report on Standardizing Teachers' Marks," *Sixth Yearbook of the National Association of Secondary-School Principals*. Menasha, Wisconsin: George Banta Publishing Company, 1922, p. 183-202.

Following a summary of a questionnaire study of practices are recommendations that an A, B, C, D, E system be used and all reference to per cents abandoned, a detailed statement of what shall be required for each mark, and a selected annotated bibliography.

290. WRIGHT, F. L. "The Distribution of Teachers' Marks in Teacher-Training Institutions," *Educational Administration and Supervision*, 10:605-16, December, 1924.

A rather extensive study which reveals the need for attention to standards and to the distribution of marks.

291. ZERBE, J. L. "Distribution of Grades," *Journal of Educational Psychology*, 8:575-88, December, 1917.

This contains a study of marks at the Carnegie Institute of Technology and suggests a scheme of allotting them.

292.———"A Conference of High-School Teachers Concerning Marks," *School Review*, 25:676-80, November, 1917.

This gives a number of guiding principles and details concerning marks applied in the Stamford, Connecticut, High School.

293.———"Defining a Good Student," *School Review*, 34:406-8, June, 1926.

A number of qualities characteristic of a good student are listed; also a very brief definition of each of five marks in terms thereof is given.

## PART V. PREVENTION OF CHEATING

294. BIRD, CHARLES. "The Detection of Cheating in Objective Examinations," *School and Society*, 25:261-62, February 26, 1927.

The writer describes a method by which cheating on objective tests may be detected easily.

295. CARTER, T. M. "What College Students Think with Respect to Cheating in Examination," *Phi Delta Kappan*, 11:3-10, June, 1928.

The writer reports the responses of over 400 Albion College Students to a series of five questions concerning cheating.

296. DOYLE, LILLIAN and FOOTE, MARIE. "The Pledge as an Instrument to Secure Honesty in Examinations," *Peabody Journal of Education*, 3:79-84, September, 1925.

A study based on data obtained in a single high school leads the authors to conclude that the use of the pledge is undesirable.

297. FENTON, NORMAN. "An Objective Study of Student Honesty During Examinations," *School and Society*, 26:341-44, September 10, 1927.

An experiment in a college class revealed a large amount of cheating and suggested that past training may be an important cause of honesty or dishonesty.

298. GRIFFIN, H. D. "Safeguarding the Final Examination," *School and Society*, 23:342-44, March 13, 1926.

A method is described by which examinations may be prepared and administered in such a way that copying from others' papers is practically impossible.

299. GUNDLACH, RALPH. "A Method for the Detection of Cheating in College Examinations," *School and Society*, 22:215-16, August 15, 1925.

The writer reports a study of the amount of copying the answers of others on true-false tests. He employed a method of detection which he recommends for general use.

300. HINES, H. C. "The Honor System and the Normal Curve," *School and Society*, 26:481-85, October 15, 1927.

The writer offers evidence to show that the honor system does not abolish cheating. He discusses the whole matter of honesty and character development, concluding that teachers must create moral conduct through precept and example rather than by testing.



